Release Notes
LaGriT version of Fall 1999

A summary of the major changes found in this release are listed below. A complete list of changes is included at the end of this document. Refer to the user's manual for a complete description of the new, enhanced and revised commands.

New Commands:

rzv   distribute nodes as linear combinations of 3 supplied vectors.
rzv/geom/n1,n2,n3/v11,v12,v13/v21,v22,v23/v31,v32,v33
geom can be **xyz, rtp** or **rtz**. n1,n2,n3 specify the max number applied to each vector. The v's are the 3 basis vectors.

rzamr   use octree refinement to a specified level on a existing hex mesh to distribute nodes within a region- intended a a node distribution algorithm only - no hex information is preserved.
rzamr/region_name/number_of-levels

createpts   wrapper for all the 'rz' type command:
createpts/xyz|rtz|rtp/n1,n2,n3/x1,y1,z1/x2,y2,z2/[ix,iy,iz/]/
[irx,iry,irz/rx,ry,rz]
createpts/sphere/1|2|8|diamond /nr,npt,xirad,xorad
/xcen,ycen,zcen/iz/irat,rz/
createpts/brick/xyz|rtz|rtp/ni,nj,nk/xmin,ymin,zmin/
xmax,ymax,zmax/iiz,ijz,ikz/[iirat,ijrat,ikrat/xrz,yrz,zrz/isym,jsym,ksym
createpts/brick/xyz|rtz|rtp/ni,nj,nk/**pstatus,get,**name/**connect**/
createpts/**amr/**region_name/number_of_levels
createpts/**random/ xyz|rtz|rtp /**spacing/ x1,y1,z1/x2,y2,z2/
[xcen,ycen,zcen/ edgedist/ ranseed1,ranseed2]
createpts/**vector/ xyz|rtz|rtp**/n1,n2,n3
/v11,v12,v13/v21,v22,v23/v31,v32,v33

Enhanced Commands:

boundary   add option to establish or to reset icr, icontab relationship for a set of surfaces. This is normally done by the **setpts** command, but if surfaces are defined after setpts, the surface command will cause an entry in the icontab table for the nodes on the surface, but no entry will exist for intersections of surfaces.
boundary/dirichlet/icr//surface list
e.g. **boundary/diriclet/icr//top left front** will identify the nodes on the intersection of the surfaces **top left** and **front**, and will set the icr value of these nodes to point into the correct icontab entry.

quality   add pcc option which will identify negative coupling coefficients and create an element based attribute to store the value (1 means okay, anything less than 1 is a negative coupling) **quality/pcc**

boundary_components Now prints out number of connected boundary components and a representative vertex from each component.

rmpoint/sparse For expert users only. Requires reconnection when done.

Bugs:

Date	Routine	Description
06/10/99	pntlimc	fix missing argument in call to writloga - return empty set if error
06/13/99	refine_face_add	fix incorrect icr and itp values assigned using refine/addpts to triangular 2d mesh
	refine_fix_add, cer_chain, cel_chain	
06/16/99	copypts	remove extra comma from write statement
06/17/99	readavs	read pyramid data correctly
06/23/99	control_command_lg	fix errors in nesting of infiles and in invoking infile from dotask
06/25/99	get_elements_on_edge	update len,len1 if need to increment memory
07/02/99	readgmv_ascii	check for end of file -- skip blank lines
07/07/99	regnpts	this is really a compiler bug - change indirect indexing so optimizer does not generate bad code
07/13/99	control_command_lg	skip comments when entered as interactive or as dotasks
07/23/99	refine_face_add	make arguments in call match those in subroutine statement
07/23/99	readavs	declare pointers - use pointer_arrays.h for integer*8/integer*4 distinction
08/04/99	initlagrit	initialize pi
08/05/99	cmo_readdump_cmo	allow for zero length attributes
08/05/99	read_lagrit_geom	fix memory problem
08/10/99	multi_material	calculate length of matlst correctly
08/11/99	refine_interface_elements_lg	use nnodes for length of iseedtet
08/11/99	regnpts	use max not min for length of name comparisons
08/18/99	readdump	use ierror_return
08/27/99	rmpoint	get correct values in isetwd
08/30/99	multi_material2d_lg	refresh pointers
08/30/99	multi_material	refresh pointers
08/31/99	control_command_lg	check for an empty loop
08/31/99	matbld3d_stor, anothermatbld3d_wrapper	unformatted IO bugs
08/31/99	writedump	restore dump_recolor command
09/01/99	connect2d_lg	remove references to if4
09/01/99	initlagrit	remove test on uninitialized variable
09/01/99	read_lagrit_geom	use lengths with concatenation operator
09/01/99	refine_face_add	initialize isn1 for all new nodes
09/01/99	surfset	change dotaskgen to dotask
09/01/99	make_bigtri	get mbndry from mesh object
09/02/99	pset	fix test on mregion names
09/03/99	surface	restore tabular surface implementation
09/07/99	recon2	allow for nodes on external boundaries with no icr values
09/07/99	cer_chain	fix typo (mpary should have been mpary1) effecting pset type refinements
10/03/99	intradd	use nefcmo which is required for hybrid grids
10/14/99	region, mregion	check for size of stbout array
10/19/99	rzbrick3	check value of nwds before setting isym, jsym and ksym.

Code Improvements:

Date	Routine	Description
05/14/99	boundary	new option (see above)
05/18/99	filter	cleaned-up and added comments
06/18/99	pset	use information from call
06/25/99	get_materials_on_edge_lg	returns materials around edge
07/13/99	cmo_dump_cmo	skip cmo attributes with 'L' in ioflag field when writing lagrit dump files.

07/12/99	natbld0tri,matbld3d	assigned idebug, reduced screen output, removed print *
07/12/99	read_trilayers	postprocess by column option, preserve buffers, create buffers at interfaces, read gmv or avs files
07/12/99	temptam	new subroutine beads_ona_ring
07/12/99	rand_lg	new random number routine (fancy)
07/12/99	ran2_lg	renamed random number routine (simple)
07/23/99	temp, edit	clean up unused code
07/23/99	neighbor_recolor	improved algorithm
08/03/99	cmo_interpolate	accept 'constant' as interpolation type - implement linear,log, asinh for integer attributes
08/03/99	recon2	test for existence of icontab
08/05/99	readgmv_binary	allow line type elements to be read
08/10/99	connect	release imts1 when no longer needed
08/17/99	cmo_modatt_cmo	look for special name icr, imt, itp, isn and change icr1,imt1,itp1, isn1
09/03/99	zq	get rid of unused options
09/03/99	rz	change i6 formats to i10
08/26/99	cel_chain	check for infinite isn1 chain loops
09/08//99	dumpavs	check if no nodes, elements then return without crashing
10/04/99	delaunay	replace expensive inner loop with more efficient code
10/12/99	connect, settets, checkmbndry	check if mbndry is big enough
10/19/99	inv3x3, inv2x2 inv_schmidt_hilbert_lg.f	better solution to MX=Y for 3x3 and 2x3 cases
10/19/99	volume_qud.f volume_element.f	contains 2 algorithms for calculating volume of a quad call volume_qud (element) for old method using centroid call volume_qud(element)_alt_lg for method equalizing 4 contributing triangle areas

Code Changes:

06/11/99	refine	refine..edge for 2d now works like refine..face (in 2d edges are facets and nodes are edges - but people don't think that way hence the change)
06/24/99	rz	initialize itp, imt and icr to zero for new nodes.
06/29/99	blockcom, local_element.h	set up relationships for edges to faces for all element types
06/29/99	readgmv_ascii	call geniee at end -- skip blank lines, test for eof
06/29/99	readgmv_binary	call geniee at end
07/12/99	popcones_lg, massage	issue rmpoint/compress from within loop (needed for big problems)
08/06/99	lineline, xsectelementscmo, calc_rdist, lineseglineseg, xsectelm, inside_element, linesegtri, kdtreeselect, tritri	new subroutines
08/24/99	dump_material_list	replace * formats to speed up code
08/24/99	hpsortip, hpsorti, matbld1	replace all calls to ssort with calls to appropriate hpsort routine
08/26/99	agd3d	don't print 'curve neighbor' warning to standard out.
08/26/99	popcomponents	new topo change routine
08/26/99	rmpoint	zero out imt1, itp1, isn1, icr1 for removed nodes in rmpoint/compress option
08/27/99	cmo_interpolate	handle 'and' and isetwd as special case
08/30/99	delaunay, refine_edge_add, findface, matbld0tri, matbld2d_stor	replace calls to ssort with hpsort
10/12/99	agd, sgd	use inscribed radius not aspect ratio
10/12/99	mergepts_simplex	use epsilonv not epsilonl for volume tests